

VK3NY

# AMATEUR RADIO



Published in the interests of the Wireless Institute of Australia, Official Organ of all divisions of the W.I.A. and R.A.A.F.W.R.

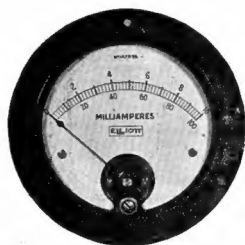


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# AMATEUR RADIO

Published by the Wireless Institute of Aust., Victorian Division.

Vol. 6 No. 1

1st JANUARY, 1938.

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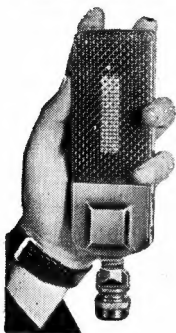
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## EDITORIAL

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The advent of Christmas means that the New Year is not far ahead. Sometime during the holiday period we'll warrant every Ham will muse. If only for a few minutes, on the events of the past year and the hopes of the coming one. We somehow gain a new hope and determination as we set our feet on the pathway of 1938, for there are fresh fields to conquer just ahead. That is the charm our hobby possesses, for every conquest made two more problems arise—our task is never done.

The past year has seen much accomplished, but, as it will ever be, much only partly done. 56 mc is still as tantalizingly obdurate, 112 mc and above relatively virgin ground. 1938 gives promise of being a highly eventful year. CAIRO!!! What thoughts, hopes, fears, what far-reaching consequences are wrapped up within the compass of those five letters! The Federal Convention promises to be one of the biggest and best ever held. What a gathering of Hams there will be in Sydney next April. Fortunate indeed are those who will be able to attend these contests! Could one imagine a more bewildering array than are presented during the first 13 consecutive weekends of the year. You can work South Africans or W's, the Empire or VK's, use high power or low power, one band or all bands. Who said Ham Radio was losing its punch? Hard to please would any man be who could not find one contest to his liking out of the collection available. And 56 mc. We have yet to record the first "DX" interstate QSO between any two States. Without a little interstate co-operation we are likely to be writing that same sentence for the January issue the following year. Those who are working on the band

seem content to play around in their own back yard and hope for the triple miracle of coincidence to happen; that signals break through to the other State, that someone there just happens to be listening, hears them, and replies, and you happen to hear the reply. Co-operation within each State seems fairly solid, but surely we can aim higher than that.

The National Field Day! THAT makes one's pulse beat quicker already. From the experience gained from the one just concluded, FHQ should be able to amend the rules to make the next one a memorable one indeed. That statement is no criticism of the last one though; FHQ, you did a great job, and personally we can say we enjoyed that week-end as much as anything we have ever done in Radio.

What a hobby! What a year gone by of DX, QSO's building and rebuilding, contests, friendships made and old ones more firmly bonded. Without Ham Radio could you have had half as much genuine pleasure, spent half as much money, lost half as much sleep, and yet wanted the whole lot all over again? We doubt it. What of 1938? Ham Radio is no damped wave petering out, but pure T9 CW going on and on and on, so turn that gain up a couple of DB, old man. 1938 is going to be a whow!

One of the Editors has just demanded to know what this is meant to be, an eulogy of Ham Radio, a New Year party, or what? Who cares anyway; the cup of Christmas cheer is brimming, so here's to the happiest and brightest New Year, gang!

The President and members of the Federal Executive extend to all members the Compliments of the Season.

# The 6L6-807 Combination

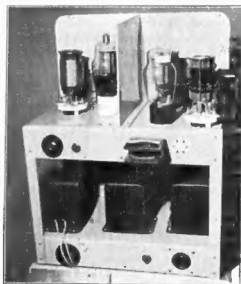
(By VK3ML, Technical Editor.)

There is definitely such a thing as "fashion" in radio. Take, for instance, the screened grid tube, the penthode, the beam type tubes, tri-tets, class B modulation, multi-element aeralis, and multi-valve receivers. Did we not graduate from Hartley oscillators, blooper receivers, high capacity three-element tubes, and the faithful old Zepp aeralis to, what we care to call these days, modern equipment? Just for the moment we seem to be in the thick of the beam tube era. First, there came the 6L6, then the 807. The ham has not been slow in cottening on to these outstanding performers, and it is not surprising to learn of so many stations being equipped with beam tubes either in the AF or RF section. From what we can pick up, a combination such as is described here, is, for the moment, the fashion of the day. A 6L6-807 combination will give all the power necessary to live up to the power licence with a minimum of equipment and space. It will work from 250 volts and lower, up to 500 volts, and is therefore universal in that it suits a country as well as a town man. Such a combination has been standard equipment at VK3ML for some time now, and any other transmitters built are exact duplicates in order that valves and components may be interchangeable. The 807 is capable of driving a pair of 800's crazy as far as grid current is concerned, and a guaranteed 100-watts input on 28 mc is easily obtained.

The transmitter as illustrated in the photo and diagram was built up for the National Field Day in December, and worked from a bank of ten forty-five volt B batteries. Class B plate modulation obtained from a 79 tube was sufficient to give a full 20 watts of modulated energy. Highly satisfactory results were obtained from this outfit from 7 to 28 mc.

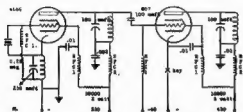
Using the 6L6 as the tri-tet crystal oscillator, some hams have run up against the old trouble of fractur-

ing crystals. The only cause of this is, of course, feed back or regemeration in the stage itself. The regenerative type of tri-tet using cathode or even condenser feed-back regeneration does not appeal to the writer on account of this factor. Originally this transmitter employed cathode regeneration, and the trouble encountered did not make it's use



"The bottom stage carries the modulation equipment complete. On the right of the top chassis is the 6L6 cathode coil and condenser. Next is the 6L6, to the left of which is its plate coil. On the left side of the baffle can be seen the 807 and its plate coil. Tuning condensers are mounted in line with the 6L6 and 807 tubes, and are brought out to dials on the front panel."

worth while. The plain, straight, tri-tet, with a cathode coil tuned to the fundamental frequency of the crystal was reverted to, and success was achieved immediately. With a high C in the cathode circuit the output compared as favourably as with that obtained from the regenera-



It is well to note that RF chokes have been freely used in this outfit, and their use is well worth the slight expense. The proof of the pudding is always in the eating, and having tried these circuits both with and without chokes in plate, grid, and screened grid leads, let it be said that a chokeless transmitter cannot compare from the efficiency point of view with one using RF chokes that actually do choke. Regeneration tendencies and erratic performance, and instability, are overcome to a very great extent by RF chokes.

Of very great importance in transmitter design is the matter of RF returns. Experience has taught the writer that this is an equally vital factor as a short lead carrying RF. One may overlook the fact that the RF must have a complete circuit with a return lead, and pay little attention to the grounding of condenser by-passes and earth returns. It is a wise policy to employ one common HEAVY earth return lead to the filament of RF stages and to connect each stage with a heavy wire. Trusting to earths on the chassis is a poor idea. In wiring up this transmitter the first wires soldered up were the common earths, from which all by-passes and returns were run.

As each of the variable tuning condensers had to be insulated from the chassis, and panel use was made of insulated adjustable brackets, this

permitted the outfit to be completely wired up and independent of the front panel for condenser supports. As Eddystone coil formers were used for all the coils, it was possible to employ coil Frequentite coil sockets in place of the sub-chassis type, thus permitting wiring of R leads direct to the condensers, and consequently avoiding the necessity of taking leads through the aluminium chassis. This is a saving in lead lengths, as well as loss in efficiency. A baffle was required between stages to overcome some slight feedback, and it can be plainly seen in the photo.

In the tuning up process use was made of the grid current meter in the SOT stage. A maximum of 5 milliamps grid current on all bands was chosen from the manufacturer's tables. Once all the experimental work was completed in lining up, this meter was dispensed with and sole reliance was placed in the plate current readings. This 0-150 milliamp meter, by the way, reads the total current drawn from the power supply, and does away with the idea of meter switching. As a single wire matched impedance aerial is used with this rig, there is not need for an aerial coil; the line being tapped up from the ground end to suit the load necessary.

Both the chassis shown in the illustration are 10" x 6", with a turn over of 2".

All that remains to be detailed in this brief article is the coil data chart. Right throughout, number 18 gauge tinned copper wire is employed for the coils. The chart given, as stated before, is for coils wound on standard ribbed and threaded 14 turns per inch formers.

Crystal	Cathode	Plate	Plate
80 metres.	6L6.	6L6.	807.
Band.	Turns.	Turns.	Turns.
40	20	22	22
20	20	7	7
10	20	7	3
40 metres.			
Band.	Turns.	Turns.	Turns.
40	shorted	22	22
20	7	7	7
10	7	4	44

When using the 807 on the fundamental of the crystal it is necessary to short circuit the cathode coil and the 6L6 then functions as a plain penthode oscillator.

# **RADIOTRON 1608**

- High efficiency
- Ceramic base
- 50 Watts Class B Audio (2 valves)
- 18 Watts Plate Modulated
- 27 Watts Class C Telegraphy
- 40 Watts maximum input
- Maximum ratings to 45 MC
- Low plate voltages
  
- 20 Watt (Dissipation) Triode
- Filament 2.5V 2.5A
- Amplification Factor 20
- Plate Voltage 425 max.
- Plate Current 70 ma. max
- Medium 4 Pin Base
- Typical output
  - 18 Watts (Plate Modulated)
  - 27 Watts (Telegraphy)

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# **RADIOTRONS**

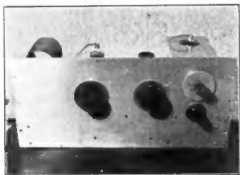
(Advertisement of Amalgamated Wireless Valve Co. Pty. Ltd.)



## The Transmitter at VK3MV

The transmitter described here is a relic of the bad old days—25-watt days. However, one or two features are worthy of mention, and an 807 will shortly replace the present power amplifier.

The circuit differs in some respects from the usual two stage job. First, the keying. This is accomplished by a blocking bias applied to the suppressor of the Tritet oscillator.



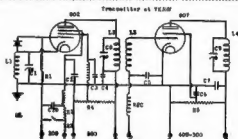
Suppressor keying was chosen, as, together with the shielded oscillator, it permits break-in operation, and is completely free from chirps, clicks and other keying troubles. Secondly, the coupling between stages. The advantages of this method are:—Assists compact design, is much more efficient than the capacity-choke system, and does not require an additional tuned circuit, which would be necessary with link coupling.

The controls on the panel (Fig. 1) are, right to left, cathode condenser, oscillator plate condenser, and amplifier plate condenser. The rear view (Fig. 2) shows the simplicity of the lay-out. Left to right, can be seen the shielded oscillator, oscillator plate tank in the centre compartment, and power amplifier section.

Aluminium is used for chassis, panels and shields. Measurements are—Chassis, 17in. x 8 in. x 2½in., panel 19in. x 8½in. The shield box, which contains the oscillator tube, cathode tank, by-passes, and crystal mount, is 8in. x 5½in. x 4in. The shield between oscillator tank and

power amplifier is 8in. x 6in., and its purpose is to prevent any stray coupling. All shielding is built up with ¼in. square brass rod, which makes a very sturdy job. The shield around the amplifier, which extends to the tube's internal shield, is a coil can, whose top has been spun out in a lathe.

The oscillator tube is mounted above the chassis, so that about ¾in. of the 802 protrudes through a hole cut in the top of the box. It also allows the by-passes to be connected directly to their respective pins.



### 3MV TRANSMITTER COMPONENT SPECIFICATIONS.

C1	200 m.mfd	R1	50,000 ohms
C2	3, 4, 5, 6, 0.1 mfd	R2	10,000 ohms
C7	0.002 mfd	R3	50,000 ohms
C8	100 m.mfd	R4	25,000 and
C9	100 m.mfd		10,000 ohms
C10	0.25 mfd	R5	25,000 and
			10,000 ohms

### COILS.

Oscillator cathode and plate coils are wound on Eddystone threaded four-pin formers (14 turns per inch).

	7 mc	14 mc	
L1	9	9	18 g enamel
L2	20	8	18 g enamel
L3	6	3	30 g D.S.C.
L4	13	5	¼in. copper tubing
			2½in. diameter

To facilitate the changing of crystals, which must be shielded, a tube socket is mounted in the top of a rugged coil can. A 2½in. diameter hole is cut in the panel, and the bottom of the can welded flush with the surface. The usual base of the can, together with a circular piece of aluminium, form a cover which is only about an ¼in. out from the panel when in position.

The remaining construction is quite straightforward, and can be followed from the photographs.

Putting the rig in operation is not difficult. All the tuning is done as usual, except that when operating on the fundamental frequency the cathode condenser is set near minimum capacity. Keying bias is approximately 230 volts, but if there is any trace of R.F. in the oscillator plate tank with key up, this must be increased until complete cut-off is obtained. A signal can be heard in the monitor with the key up, but this is from the cathode circuit, and is less than 5 $\frac{1}{2}$ .



To date the rig has only been operated on the fundamental (7 MC.), and results have been gratifying. Previous rigs caused clicks in two of the three B.C. receivers located in the same house, but this job does not affect them in any way. Very local experimenters also report that no clicks are discernible. This is a step forward, as nothing is more annoying than to have a QSO spoiled by the chappie in the next street.

In conclusion, a word of warning. Do not attempt to use a Triton on the fundamental unless a well screened tube is used. Tubes such as the 59 are unsuitable, as in addition to excessive feed-back the suppressor does not have sufficient control of the plate current.

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## Reducing Background Hiss in Superhet Receiver

(By VK2ABS)

Many ham superhetrodyne receivers, while possessing ample selectivity and sensitivity, are cursed with an intolerably large amount of background hiss, which is particularly noticeable when two stages of I.F. amplification are used. Many signals which would otherwise be QSA 5, are drowned in the receiver background noise, and the useful sensitivity is thus greatly reduced.

The writer recently had occasion to design a nine tube amateur receiver, and some preliminary experiments were conducted with the object of keeping background hiss as low as possible. It was discovered that almost all of the hiss originated in the first detector stage, the usual R.F. pentode of the 57 or 6C6 variety being a particularly bad offender, regardless of the type of oscillator injection employed.

Regeneration on the first detector (a 6C6 in this case) was tried, and although the gain of the stage was increased very considerably, unfortunately the noise level was increased in the same proportion, so that actually from the aspect of noise level, regeneration was of little advantage.

A pentagrid converter type 6A7 was next tried, but results were much the same as with the 6C6, except that considerable "pulling" was noticed between the oscillator and detector tuned circuits, especially on frequencies higher than 7 MC.

The next scheme tried was an EK2 octode, used as an oscillating first detector in the usual way, and immediately a large improvement was noticed, the gain being much higher than any other scheme yet tried and the background hiss very low indeed. The EK2 performed very well on 3.5 MC and 7 MC, but unfortunately the stability on 14 MC was rather poor. Despite all efforts at shielding, it was found impossible to eliminate the "pulling" effect between the two tuned circuits.

(Continued on Page 10)

## Applying the Radiotron 1608

The release of Radiotron 1608 makes possible the design of a transmitter with a plate input to the final stage of 25 or 30 watts, giving an output of 16 or 18 watts carrier, with provision for 100% modulation. This new valve is capable of operating at full ratings at frequencies as high as 45 megacycles. It has an isolantite base in order to eliminate losses in the base at the highest frequencies. The plate voltage under plate modulated conditions is only 350 volts maximum, and under other conditions 425 volts maximum. With a plate dissipation of 20 watts, the maximum output is as high as 27 watts for class C telegraphy.

The application of a triode valve appears to be most valuable in the final stage to which plate modulation can be applied, so that the maximum carrier output for a limited plate input may be obtained. A driving power of only 2.7 watts is necessary for a carrier output of 16 watts, so that there should be no difficulty in obtaining the necessary driving power even if the buffer is used as a frequency doubler. The difficulty with all plate modulated transmitters is that the modulator tends to become the most difficult and expensive part of the equipment. This is especially the case with type 6L6 or similar valves that are used under class AB2 conditions. Not only is the operation of these types somewhat critical, but carefully built and correspondingly expensive transformers are necessary.

It has been shown in Radiotronics Technical Bulletin No. 78 that a powerful audio amplifier incorporating 2A3 valves in push-pull, with back bias, may be constructed without the use of any inter-valve transformers. The circuit of this 13.5 watt class AB1 amplifier is reproduced here, and it will be seen that it consists of one 6C6 high gain pentode driving one 6C6 connected as a triode, and operating as a phase splitter, which in turn drives two push-pull 42's connected as triodes against resistance coupled to the output stage. The

advantages of this circuit are obvious, since not only is a transformer no longer required, but the fidelity is extraordinarily good. The overall performance of this amplifier on a resistance load is flat from below 30 to above 10,000 cycles per second, and when used as a modulator this performance should also be obtained. In this amplifier there are no critical adjustments to be made, and the only transformer required is the modulation transformer. Since the modulation transformer requires a primary load of 4,000 ohms plate to plate, a much simpler design of transformer is possible than with valves requiring a higher load resistance, and consequently a higher inductance. The use of triode valves in the modulator has distinct advantages, since no damage can be done either to the valves or to the equipment by overloading in the final stage of the modulator.

When Radiotron 1608 is operated under the conditions given below, the resistance imposed on the modulator is 4,200 ohms, which is almost identical with the load required by the 2A3 valves in the modulator. The consequence is that a transformer having a primary to secondary ratio of 1 : 1 overall is satisfactory.

The recommended operating conditions for an input of 25 watts are:—

Plate Current ..	25 watts
Plate Input ..	77mA
Load to Modulator ..	325 volts
Plate Voltage ..	4,200 ohms

A very effective transmitter can therefore be arranged by using type 6L6G as triode crystal oscillator, second 6L6G as doubler or quadrupler, and a final stage consisting of one 1608 plate modulated by the amplifier if still higher power is required, it would be possible to use two 1608's in push-pull modulated by a push-pull class AB1 arrangement using 6L6G valves. With either arrangement it would be possible to operate at full output down to 10 metres, and under suitable conditions to obtain good output at 5 metres.

The nearest equivalent to the 1608 among the older types is the 801, which has been widely used. Radio-tron 1608 employs a heavier and stronger filament operating from a 2.5 volt supply. The filament of the 1608 is oxide coated as compared with the thoriated tungsten filament in the 801. The lower filament voltage drop in the 1608 should improve the performance on the higher frequencies, while the higher amplification factor of the 1608 (20 as compared to 8 for the 801) results in easier driving. The higher mutual conductance of the 1608 makes possible the same plate efficiency on 425 volts as the 801 is capable of providing on 600 volts.

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(Continued from page 8)

This suggested using the pentode portion of the EK2 as a mixer and using a separate, well-shielded oscillator stage. Accordingly a type 6D6 was used as an electron coupled oscillator, the cathode of which was capacity coupled to the EK2 Mixer. Various ways of injecting the oscillator output were tried and the most satisfactory method was to use the oscillator grid of the EK2 (i.e., the one nearest the cathode) as an "injector grid," and the anode grid, which was now not required, was connected to the screen grid. This arrangement, while somewhat unorthodox, gave splendid results, the gain being definitely better than any other system tried, yet the noise level was lowest. Incidentally, it was found that a screen voltage of about 75 volts gave the best sensitivity, this voltage being comparatively critical. We can recommend this system of frequency conversion as being well worth trying.

## IMPORTANT NOTICE.

All Wireless Institute officials and experimental licencees are advised to address correspondence to the Radio Inspectors Department officially and not to individuals. This form of address frequently leads to delay in correspondence, as the individual so addressed is sometimes absent when the letter is received, and delay naturally results.

## Australian and Victorian QSL Bureau

VK3RJ Qsl Manager.

Owing to the insistence by the Postal authorities that cards to countries outside Australia must be prepaid at letter rates of postage, I regret to announce an increase in Qsl charges to 9d. per dozen cards irrespective of destination.

Cards from previously remote South American countries, such as Venezuela, Nicaragua, Uruguay, Brazil and others, are coming to hand. These should delight the hearts of W.A.C. aspirants. Reports from Mac of 3XZ, who, with 3HZ, spend their time at 3UL War-ragul, show encouraging activity and results on the U.H.F.

Doug Facey, 3DW, in an interesting summary of his gear, regretfully announces that "time marches on," even in Shepparton, where an O.V.1 is no longer sufficient.

3BG, who has recently made W.A.C., and had his 2000th Q.S.O., intends to avail himself of the increase in power now permitted. A new bug also adds to the station's efficiency.

F.H.Q. should thank Bell Sievers, VK3CB, for the gratis publicity given to the Sydney celebrations and tests. Bill made the journey home from the December KP meeting, with a large sticker implanted 'tween his shoulder blades.

A few VK stations still "ape" B class stations on the various bands. Scope for the Vigilance Committee exists in this direction, and in the matter of the infringement of the 7 mc force regulations.

The Qsl manager and his budding assistant, Joyce, extend the season's greetings to all.

Qras of the following VK3 stations are solicited:—3EE, EC, QO, QS, TT, VQ, VR, WR, WU, ZV.

Congratulations to VK3DG, Dick Giddings and his YF of Stratford, on the arrival of a junior op—the first.

Cards for the following VK3 stations are available at the Bureau, 23 Landale Street, Box Hill:—

3AT, BJ, BS, BV, CA, CC, CU, CV, DJ, DS, DU, ES, FA, FM, FN, GB, GJ, KT, LL, LS, NA, NB, NC, NF, NT, OU, SE, SF, ST, TB, TQ, TY, UF, UJ, WH, WW, XA, YA, YG, YM, Ashman.

## Where are we going on 5 Metres?

The Editor,  
"Amateur Radio"

Dear Sir,

I am of the opinion that it rests with the experimenter to take some of the Poppy Cock out of the 56 mc band?

Very little indeed is known of the behaviour of waves at this frequency. In 1921-22, when I proposed to the Institute that we, in Australia, should be receiving American amateurs on 200 metres, very little was known of that particular band. Despite a great deal of discouraging criticism we got them—hundreds of them. This was done by a group of enthusiasts and a little intelligent organisation.

56 mc should be tackled in the same way. The W.I.A. has better opportunities for organised experimental work to-day than ever it had.

Now, what do we know about 56 mc? We assume in the first place that the signal should be sent parallel with the earth, but why?

Some of the fellows have been directing 56 mc waves by beams of all kinds towards distant points now for several years, with what net result? A few isolated cases of long distance transmission, but nothing consistent has been achieved, and no real theory formulated as to how and why.

I submit that our theory is wrong; we have no real proved basis for the assumption that waves parallel with the ground are the answer to the problem.

Experience would rather tend to indicate that something does happen at a height above the ground—perhaps much further up than it is suspected.

This thought suggests the reversal of the application of the beam instead of rotating our beams round the point of the compass parallel with the ground as in "A," an organised period of test with beams projecting at varying angles of incidence may bring results.

I feel that a period of serious research on these lines may ultimately bring results on 56 mc which will allow operation equal to perhaps 14 or 28 mc. There is nothing to prevent the construction of beam aeriels to work laterally and vertically, and in this manner all manner of combinations could be tried. What will be wanted will be six or eight enthusiastic experimenters in each State to do some serious work.

I hope the W.I.A. will get down to something of this nature, and let us attempt to crack some of the problems of the 56 mc and higher.

Yours faithfully,

H. KINGSLEY LOVE.

### THE I.R.E. TROPHY CONTEST.

Note amendment to Rule 2. The second week-end date and times should read: "12 noon EST Sunday, 30th, till midnight EST 30th January, 1938." Note also the amended message.

### VIC. DIV. GENERAL MEETING.

VK3 members note that the next General Meeting will be held on Tuesday, 1st February, when the Key Section will be the hosts of the evening.

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## Correspondence

Canley Vale, N.S.W.,  
The Editor. 8/11/1937.  
Dear Sir,

I beg space in your valuable paper to voice approval of "Old Hombre's" article ("A.R.," October). However, a few points were overlooked by "Old Hombre," namely, regarding procedure when about to cross for reply in course of QSO. We all know, or should know, the regulations, but some of us certainly don't.

For example, almost every night, on 7 mc, North Coast VK2 can be heard calling thus: — Hotcher! B-r-r-r. This is V-K-2-X-Z H. Well, old-timer, I'll bounce it over to you now, it's yours take it away! Okey Dokey! Compare this with the P.M.G. Handbook, section 112. Quite different, isn't it? But we must remember that these fone hounds must have "poisonality" in their voices in order to appear big! in the eyes of the general public. Of course, 7 mc must be used, as dual wave sets do not cover 3.5 mc.

Imitators of "Fats Waller," plus heavy nasal accent, think they sound like N.B.C. announcers, but let us hope the W.I.A. will rid 7 and 14 mc of these pests soon.

While listening on 7 mc recently I heard a 3-letter chap of recent origin say, "I can't read cw, OM; I forgot that stuff long ago."

A few days later this fone merchant called me on cw, using freq of 6.85 mc. I immediately answered and said, "QSY, OM, w/ freq 6.85 mc."

The answer came back, "R.O.K., OM, but pse repeat my report."

After three attempts to make him understand, he did not come back.

This fone business should be stopped, and a good remedy would be for P.M.G. to enforce a fixed percentage of operating time to be on cw, say, 75 per cent.

According to Sept., 1936, regulations, fone on 7 mc after 5 p.m. is to be limited to genuine experiments, but listen to the trash put over after 5 p.m. Not one QSO in thirty is a genuine experiment.

It is certainly a pity the Vigilance Committee is not more severe in checking up on 7 mc and 14 mc.

Regarding high power permits, I

recently heard one fone merchant use 100 watts to work four miles!

Yours for Radio,  
LES. TANNER, VK2ABL.

P.S.—As I write I find the "brilliant" all fone fellows from 7 mc are now "testing" on 14 mc during DX period with beautiful music and witty (?) announcing.

## Wireless Questions

### 3. HOW IS TIME MEASURED IN HEAVISIDE LAYER DETERMINATIONS?

(What is a simple method of measuring the time interval between that of the released signal and the return of same?)

#### Answer to Problem Three

The most convenient method of measuring the height of the Heaviside layer is by the application of the principle of echoes. A receiver is connected to a cathode ray oscilloscope in such a way that the time interval between any two impulses applied to the receiver a small fraction of a second apart can be measured. This is accomplished by the application to the time-base plates of the oscilloscope of a frequency of some hundreds of thousands of cycles a second.

If the period occupied by one half-cycle of the time-base frequency is accurately known, the length of the time-base trace on the screen must equal that period, and a knowledge of the wave form of the time-base frequency enables the trace to be calibrated into sub-divisions of the time occupied by a half-cycle. A transmitter is established near the receiver, and a pulse is transmitted. This is recorded as a peak on the time-base line on the oscilloscope. The signal travels to the Heaviside layer and is reflected back. The oscilloscope records a second peak, due to the echo a fraction of a second after the direct signal is recorded.

The time difference between the signal and echo can be measured directly from the oscilloscope screen, and from it the difference in the lengths of the signal path and the echo path can be calculated. When this difference in path lengths is established, the actual height of the Heaviside layer can easily be deduced.

## South African Relay League

**Annual International DX Contest.  
JANUARY, 1938.**

**S.A.R.R.L. South African-International DX Contest** — Annually (second and third week-ends in January of each year), commencing 1938.

Dates for 1938.—8th January, 1938 (0200 GMT) to 9th January, 1938 (2200 GMT), and similarly on the following week-end, 15th January, 1938 (0200 GMT) to 16th January, 1938 (2200 GMT).

(Q Call.—All DX stations to call Q'Q S.A. Test.

Bands.—All.

System of Reporting. — R.S.T. report followed by a selected serial number. Only one contact is allowed on each band, but stations worked during the first week-end may also be worked during the second week-end. "Skeds" must not be arranged either between stations or for other stations.

Scoring.—Two points each for exchange of serial numbers between two stations on any band. One point each in the event of only one serial number sent and received.

Districts.—U.S.A., Australia, New Zealand, Canada and Argentine, to be divided into their respective districts.

Zones.—DX stations (excluding the following countries): — ZS1-6, ZT1-6, ZU1-6, CR6, CR7, VQ2, VQ3, VQ8, ZE1, ZN1 (Bechuanaland),

ON4 (Congo), FR8 and FB8 (28 Zones), will multiply points scored by number of above zones worked. African stations multiply points gained by countries or sub-divisions worked.

Awards. — The "Ross-Kent DX Floating Trophy," as well as a certificate, will be awarded each year to the full member of the League in the Union, who scores the highest number of points in the contest. In the Union of South Africa, the Rhodesias, South-West Africa, and Portuguese East Africa, only League members will receive certificates. All such members to be in good standing immediately prior to the commencement of the contest. Elsewhere a certificate will be awarded to the competitor in each country or sub-division who scores the greatest number of points. N.B.—No certificates will be issued on winning scores of under 100 points.

Returns.—These must reach South African Radio Relay League Headquarters, P.O. Box 7028, Johannesburg, South Africa, not later than the 15th March each year.

General.—DX stations outside the South African zone will multiply points gained by the number of South African zones worked. Contacts with ships at sea or in port do not count. Only one contact per station per band is permitted each week-end.

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## Some Notes on the 5 Metre Field Day

(By VK3PS.)

About two months ago 3JO suggested that a five-metre field day should be held in conjunction with the National Field Day on 5th December. The suggestion was followed by several long discussions between 3JO and 3PS on the said band, and a plan was formed which subject to suggestions by other interested parties, was put into operation on an almost ideal day for the time of year.

By means of radio, letter and notes published in "Amateur Radio," all parties who were interested were advised of the details, and arrangements were fairly complete when, according to schedule, 3PS put out a call on dual transmission 7040 kcs and 59 mcs at 10.30. However, owing to interference from VK2 phone stations and other factors, there was no response on 40 metres, and the checking channel was soon abandoned.

The portable stations who were on the job were 3VII-3JO on top of the You Yangs, near Geelong, and using a 76 oscillator with about 4 watts input and an H type array with reflectors. 3OT-3LG were on top of Mount Tarrangower, near Maldon, and about 15 miles north-west of Castlemaine, with push-pull 45's, 15 watts input and an H array. 30F took up a position in the mountains near Foster; he was using a push-pull rig with a 201A and 171A and an H type array with reflectors. 3DH went to the top of Pretty Sally on the Hume Highway, near Wallan, but was not successful there, and eventually moved to another location near by, and although he did not contact anyone was heard by 3VH and 3PS, and he could hear 3VH.

Country stations at fixed locations were 3HZ, at Warragul, "right under 3UL's antenna," using a stabilised oscillator with 45's in push-pull, 20 watts input, and radiated with two vertical half waves in phase, the bottom of the antenna being only 8 feet from the ground, and 3RS, at

Congupna, "on top of 3SR's mast." 3RS had a most disappointing day, as he heard nothing, although on the job 1400 to 1730. We can't understand why he did not contact 3OT, as the latter had his beam trained on Shepparton several times, and the country between them is very open.

City stations who were on the job all day were 3OJ, 3QJ, 3EM, 3XM, and 3PS, and later in the afternoon 3YL and 3HK came on. It was unfortunate the Gil. Miles, 7KQ, who had made arrangements to be duly installed on the top of Mt. Wellington, was unable to be on the job, as work was too pressing; from results, Gil. would have had a fair chance of a contact with VK3.

3VH-3JO undoubtedly had the best day, and despite the difficulties of getting the gear to their location they are quite prepared to go there again. They heard all stations on the air except 3RS, and worked all points heard except 30F. At the time they contacted 3HZ, 3EM was listening to them, and he says that one of the funniest things he has heard on the air was Herb. (3JO) dancing round the top of the You Yangs, microphone in hand, confirming the contact.

The outstanding performance of the day was the "hearing" both ways between 30F and 3OT over a distance of 153 miles air line with high mountains between them. Unfortunately, 30F was using a very low frequency buzzer for tone modulation, and it was very difficult to read it on 3OT's super-regen, otherwise a definite contact would have been established.

3HZ worked only 3VH-3JO, but put an r8 signal over the intervening 55 miles. However, the contact has opened up a field for future tests, for the reason that while it was in progress his signals were not audible in the city, but during the latter part of it 3XM located a carrier, which came on when 3VH changed over, but could not distinguish any modulation.

(Continued on Page 25)



## 28 and 56 M.C. Notes

(By A. Pritchard, VK3CP.)

The National Field Day gave an excellent opportunity for good portable work, and the 5-metre gang were not found wanting; many of the available high spots were made good use of, resulting in good long distance contacts for 5 metres. VK3VH/JO, at Flinders Peak, You Yangs, had many excellent contacts, the best being 3PS r8, 3QJ r9, 3XM r8, 3OT r8, 3HZ r8; also heard 3OJ, 3LL, 3YL, 3HK, 3EM, 3DH, 3DF, and 3NG harmonic!—the 3JO-HZ qso being 82 miles; 3OF heard 3JO, and was heard by him, this distance being 107 miles. 3VH/JO used a 76 in a series fed Hartley with  $4\frac{1}{2}$  watts input and 6L6 modulator; the antenna was an H type Beam with reflectors, hung from a 30-foot portable mast. The receiver used had 4 tubes, super het-rc ix f's. VK3OT/LG, at Mount Tarengower, Maldon, used PP45's, 15 watts input and H type beam antenna; he qso'd 3VH/JO, 3PS, 3QJ; sigs from 3OF were very weak. 3DH, on the Dividing Range, near Wallan, heard only 3VK/JO; he was using 76 series fed Hartley, 41 modulator,  $\frac{1}{2}$ -wave vertical antenna,  $\frac{1}{2}$ -wave feeders and twisted pair. VK3OF, at Foster, near Corner Inlet, heard 3OT's r6 and 3AP's harmonic! He used a PP osc., '71A-201A, modulated by a single 41, an H type beam with reflectors for the antenna system. VK3HZ, at Warragul, had PP 45's, 20 watts input—2 half waves in phase,  $\frac{1}{2}$ -wave stub in centre, and twisted pair, 8 feet above ground, and surrounded by guy wires, etc., of 3UL. He qso'd 3VH/JO r6 and heard 3OF. Some of the distances covered are:—3VH/JO to HZ, 82 miles; to 3OF, 107 miles; to City, 35 miles; to 3DH, 50 miles; to 3OT/LG, 70 miles; from 3HZ to 3OF, 37 miles; to City, 67 miles; from 3OT to 3OF, 160 miles; to City, 75 miles. This will give an idea of the excellent work done with such low power and small portable outfits. Conditions on 10 metres are about the same, and between 8.30 and 9.30 p.m., also from midnight onwards many Europeans and W's stations have good strength. On 21st November

SM6WL, G5CY, PAoXR, G2WD, G5BB, ES5D, YM4AA, D4XJF, F8EO, SM5VM, VK2TI, VK3HQ were good strength around 9 p.m. PK3BW was heard qso PAoXR at 11.30 p.m.; also K5AG and OH3NQP fair strength. G2XC qso ZE1JN, G5GI, G2WS r7 at 12.10 a.m. 22nd November, G6RB 12.30 a.m., continuing later at 3YP 12.30 to 1 a.m., W4IO, XE1AM, W4MR, W8VTI, 1.15 to 2 a.m., W8JIN, W9SPB, W8BTI, W6NYA, W1DZE, r7; W9FS r9, W5AFX r7, were qso'd by 3YP, also heard W8HEW r8, 2.10 to 2.30 a.m.! VE4RO, W6DUC, W6ITH (phone r9), W6MCQ, all of these w's had a bad echo; VK2ADE 20 mx harm. r7 at 2.30 a.m. The same day later (!) here at 3CP, OK2RS, F8TI phone r5, PAoVB, APoQZ, all at 11.30 p.m. VK3BQ has the W8JK flat top beam in operation, on the States, and finds it is much more efficient and easy to adjust than the H type. There are many good strength W's on during the morning with peak conditions (at present) around 8.30-9.30 a.m. W5GGX, W6JYM, W2ANM, W5DSH, W9RZM, W4EEC, W4EHH, W4ECI, are usually r8 phone. On the 3rd December W3VB was contacted here at 3CP at 1.15 a.m., and W2FSN and W8NK, also VK5RX harm. were r7 at 1.30 a.m. The following early morning at 3YP, 1 a.m.! OK3VA, PAoVB were qso'd, also PK3BM r8 phone, 15 watts input; at 1.20 a.m. W4CDZ, also many 20 mx harmonics from VK5, and 2 were r8 showing many and varied skip distance paths. Sunday, 5th December, at 11 p.m., D4XJF, G2WD, VU2CQ, and PK3BM qso YL2CD, were r7/8 cw. The following Sunday VU2CQ's phone was r8 qso OK2LO at 11.45 p.m. VK2RA is having many fine DX contacts, and the 9-tube McMurdo Silver 5D certainly brings in the weak ones. 2UD, 2VN, 2TI and 2HZ are also consistent VK2's. There are very few New Zealand stations on at present; ZL3DJ and ZL2CI, the latter with 100 w and HF100 final have good strength about mid-day during the week-end.

## Divisional Notes

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To ensure insertion all copy must be in the hands of the Editor not later than the 18th of the month preceeding publication.

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### Victorian Division

#### KEY SECTION NOTES.

(By VK3HK.)

Another well-attended meeting of the Key Section was held at the rooms on 7th December. After the usual business was disposed of we had an account of the activities of the gang in the field day held 4th December, also a few technical questions were presented by members present for explanation. These proved very interesting to all. And now for some dope from the gang.

3LA is vy QYL. 3LA is using PP. T20's es 6L6 modulators, but 3XQ has mere stages es mere trouble.

3UO is vy QRL. Fan mail from 3LR.

3EN.—Trying 28 mc portable es a DX! contact with 3IW, also making a hole in 7 mc band.

3MV.—Wants to know how to wk dx on 14 mc. (Ask 3MR, hi!).

3ON.—Wkg dx between school exams. es study.

3XS.—Alas! Wants a cure fer key clix (use fone, hi!).

3SQ.—Going to try 56 mc wid sum local boys after holidays.

3XV.—Has got T.P.T.G. perking on 14 mc after many headaches es nw plenty dx.

3ML.—Burnt up a lot of power (Ever-ready type!) during field day. Sez wl nw trade an 807 fer 48 hrs sleep.

3EX.—QRL lately. Exams over nw es is after QSO's on 3.5, 7 es 14 mc fone or cw, nw using 6A6 co es F.D. es 59 P.A.

3UH.—Is abt to build a multi-vibrator.

3IW.—Finds 804 final slitley better than RK20 used previously

3CB.—Is still active on 200X fone es 7 mc cw.

3ZC.—Wkg sum dx, but still looking for Sth. America.

3XR.—Rebuilding agn. Rack es panel job.

3TY.—Back from VK7, QRL wk, but on 28, 14 es 7 mc occasionally wid cw es fone. What abt a shout fm R.A.A.F. Reserve, gang?

3XJ.—Trying out 2 section W8JK beam on 14 mc to Europe. Wks VS's es Sth. America quite well, but G is waiting for the sig.

Two hams to be Reg. Veal es Bill Mitchell are only waiting for their call signs, fb om's welcome to hamdom, hi.

3ZY.—Wl wk anyone, anytime, anywhere, so come in pse om.

3HK.—Not vy active lately except occasionally on 3.5 mc fone thru QR Nelly. Just returned from visit to 3BM, 3KR, 3OR es others. Had fb time.

Wl, that's the dope till next month, meantime hpe all hve had gul dx wid the Xmas pudding. 73.

#### SHORT WAVE GROUP NOTES.

(By O. E. Davies.)

Meetings of the Group are still keenly attended, Group experimentation being the chief cause of these fine attendances.

At two recent meetings of the Group the Capacity and Resistance Bridges were put to work, members thereby gaining some very useful and instructive information.

Early in the New Year it is intended to increase the field of experimentation, thereby, it is hoped, encouraging members to take a still keener interest in the real experimental side of our great Ham game.

As regards the individual members little can be said this month.

Herb. Stevens is still MOPA on 5. FB quality, too.

Vic. Leonard and Ron. Higginbotham are both sitting in the present class for the AOPC.

Ron. Chard is QRL work and Nite School.

Bertie is QRL work and Father Xmas.

And that about covers the lot this month.

Sincere apologies for not remembering Xmas last month, gang, but I will endeavour to make amends now with Best DX and 73e for the New Year.

### COUNTRY SECTION.

(By VK3UK.)

I wonder if you fellows have ever tried to make a suitable date for a Ham function that did not clash with one of the innumerable contests? It is a physical impossibility to arrange this Convention at Ballarat, we have talked so much about, until well into April, if we are not going to clash with some contest, and even April is a bad choice, because of the Federal and N.S.W. festivities in conjunction with their Sesqui-Centenary. January contains the S.A.R.L. and I.R.E. tests, February the B.E.R.U., March the W. test and FHQ Interstate Contest, and—but why go further?

We are making a start, at any rate. A weekly Sunday news bulletin will be broadcast from 3W1 on CW on 3865 kc at 0945 hours and on 7140 kc at 1030 hours. This will be relayed on phone by 3EP at 1100 hours. Now this bulletin is to provide you with news of W.I.A. doings, so you fellows must support it. Send me any criticisms or suggestions, either about the schedule times or frequencies or the news matter itself.

The next matter is the sub-division of Victoria into convenient zones. It is suggested that the best possible arrangement would be as follows:—Eastern Zone—East of Hume Highway. Northern Zone—Between Hume and Western Highways. Western Zone—West of Western Highway. When the organisation is complete in each zone division into sub-zones may be found desirable. Each zone will require a president and secretary, and a zone correspondent to look after the notes for the mag.

### UHF SECTION.

(By 3JO.)

As the results of the field day held on 5th December are fully

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covered on other pages of this issue, there is no need to occupy space in these columns with any further descriptions. However, these notes would be incomplete without a word of congratulation to those whose fine performances made this field day the success that it was.

At the November meeting of this section, an interesting discussion was maintained on the various items of interest, namely, the 56 mc frequency metre, the 56 mc transmitter for 3WI, and the field day. It is unfortunate that the various members, who have been experimenting with a view to providing the most satisfactory designs for the frequency metre and transmitter, have been unable to spare the necessary time to bring their experiments to finality, so the construction of this equipment has again been delayed. However, now that the field day, with its attendant preparations, is over, we can expect these members to knuckle down to work and produce something worth while.

Meanwhile, activity is maintained on the 56 mc band, and seldom a night passes without a contact or so. Since contact was established with 3HZ at Warragul, on the field day, some tests have been made in order to investigate the possibilities of contacts with the city stations. Using a 7 mc channel for an immediate check on results, these tests have not as yet been successful, and have been suspended temporarily, until such time as beam aeriels can be erected at both ends. As the distance between the city and Warragul is only about 80 miles, and the latter location is favourably situated on high ground, there appears to be no reason why consistent 56 mc contact cannot be established between these two centres.

3OT and 3XM can now be heard almost nightly working duplex, as of yore. Val intends improving both his receiver and aerial system before the next field day.

3PS is most anxious to get a copper tube aerial on top of his 40ft. stick, and is anticipating a great improvement as a result.

3EM recently erected the popular J type of aerial, also made of copper tube, on top of his mast, and is now able to hear and work stations that were previously inaudible.

3VH reports an improvement by using the 3LG aerial tuning circuit on his receiver, but the same arrangement tried here makes no difference!

3DH has only his portable gear at present, and is installing this in the car, so that if one location doesn't suit he can readily change to another!

The January meeting will be held on Tuesday, 18th, and, look—another field day has been mooted—don't miss it.

In conclusion, I would like to extend to all readers a hearty wish for the best of all good things during the coming year.

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- (b) The applicant must state the type and scale reading of the instrument desired. This information, together with one shilling (1/-) postage and threepence (3d.) Registration must be forwarded before any Instrument can be loaned.
- (c) Under Rule 2, the period of loan will date from the time of posting at Melbourne to the time of receipt at Melbourne on return.
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## Queensland Division

Niels Heyerdahl, ex-LA4C, sparks aboard the Norwegian motor ship Troja, recently paid a visit to VK4RM and contacted some of the gang on 40 metre fone. All of the Qs's bar one were three or four way. A lady passenger, Miss Steele, with personality plus, called the cq's and pulled them in.

A visit to the ship proved most interesting. We looked over the two 1 KW xmitters—the emergency rig is a simple TNT with a 1,000-watt bottle. AC is used on the plates; 600 cycle note. The direction finder and automatic SOS alarm also proved interesting. The Troja left Mackay and proceeded north around Carpentaria, en route to Capetown, first stop, where a stop is made for two hours to refuel. Thence the ship travels to Oslo, Norway, by way of London. Call letters are LDRM, and works on 25 and 36 metres.

40 mx is dead up this way. Tho only Qs's are local fones. Very little cw can be heard. The reverse is the case on 20. Very little local stuff, but

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plenty of DX. VK4RM going home from the pictures one night and called CQ 3 x 3, and worked three Yanks at once. Wanted to hit the key, so sent CQ three times, and signed three times, and still they came back. With one Yank, W5EOU, yarned for over an hour, and we nominated each other for the R.C.C. Finally, in desperation, sent 1 CO and signed once, tuned round, and heard nil except a Yank signing, then AR, indicating he hadn't contacted, so called him once and signed once, and said, "RU CLG ME?" He came back with "No, but you'll do!" He was calling a VK5 on my frequency, and the VK5 didn't come back! I went to bed after that.

Siberia seldom heard here, but heard five last week. One called CQ and signed VOLC. I worked him, and asked if the second figure was a 1, 9, or nought. He said nought. Until then I didn't know there was such a numerical district in call signs.

4UX continues to grind out music, and his YL announcers, Beryl and Marj., act as OQ bait. When a VK4 we hear asks if she got the cake said ham made for her—well—do your stuff, girls!

VK4RM wkd himself the other night. The pirate had a chirpy R4 note, and thought it was a great lark.

Doc Hadley, VK4AH, was busy during a Qso eating something, and fancied some icing sugar on it. The icing sugar turned out to be flour!

A seven-way qso was heard a few weeks ago on 40—all fone. We think Beryl and Marj. had a lot to do with it—wotsa, Claude?

VK4NO has had some fb fone on 40. The box underneath the rig, "High Quality Tea," explains his job T9 note.

Heard a VK2 the other day answering another VK2's query with regard to a barretter, "As far as I know it's another Bettysmith."

VK4JU has shifted his fone down to 20. This quality is not as good as his old-time loop modulated on 40. Guess those tens have "had it," Frank!

Heard VK4VH was shifting north again. He was heard on 40 metre fone in VIB at R6.

VK4FN was telling the lads he was glad to hear VK4RM was back

on 40, as the XYL had lost all interest in ham radio since 4RM went down to 20. Hi! I heard the lot, Frank, but B.C.L. QRM when on 40.

VK4EN hasn't been heard for months. He's had an open bottle in his place recently. Bought from the chemist's to excite his new addition to the family. Congrats, Eric.

We miss the rusty note of 4KR, Willis Island. They must have C.C. over there now.

4EI, QRL with Army signals. He has given up R.A.A.F.W.R. (wot a mouthful!). He's also given up RK big noises. The filaments are too fragile!

4GG hasn't been heard for a long time. Wotsup, George?

4MF shifted up north to Sarina, and threatens QRM with a 50-watt tube he has.

4RS on fone on 40. FB, Roy—thought the YL had cured you.

4AB on 20 mx CW calling CW or fone.

4AW on 40 metre fone on Sundays yarning with the boys. How's the R.A.A., etc., skeds, Arthur? Seems to be dead down there.

4BB hasn't been heard on 40 for a long time. Understand he's QRL Uncle Bob, of 4MB, etc., and spends some time on ten.

4TN, given up for good, we hear. Time will tell, OM! Cudga.

4EL is Eric Lake, of The Lake. One valver fame. Not very active just now.

4FB on 40 fone, fb R max signal. VS4OC turned out to be VK2OC on holidays.

VK4KL has a second op who's bringing in the QSL's. He's coming on fb.

4NF also on 40 fone, and his brother 4NL.

4RD has only had one qso since he got his ticket. Too QRL and no L.S.D.

VK4TY must have had another change of QRA, or else his town now has power. Missed that R.A.C.

4VZ hasn't been on at all. He's working on the new harbour at Mackay.

4ZO had a cracked scull thru an unfortunate accident some time ago. He hasn't been heard since. Hope UR OK now, OM.

VK4RM.

## South Australian Division

(By VK5KL.)

Once more a new year dawns upon us, and the council of this division wish all and everyone a prosperous New Year. The annual Christmas meeting was this year held at the Aurora Hotel, Pirie Street, Adelaide. Although not a very large number attended all had a good evening, and the "Dog" yarns by Mr. C. Searle, VK3RX, were well appreciated. The co-operation and understanding between the P.M.G. Department can be seen clearly. Mr. De Cure, representative for the P.M.G., officially and personally announced the raising of the regulation power for cw to 50 watts input. A much appreciated Christmas gift! Listening over the week-end, it seems as though us chaps have been mislead. Please note, Messrs. Seuth, Manual and Galle, VK5ZX, 5RT, and 5QR respectively, spent the week-

end of the national field day at Mt. Barker operating portable gear. The weather was very wet, and all the time was spent in the car. Score amounted only to 118 points, conditions being very poor. The winner of the xmitter hunt held at the recent field day was 5LC. He also was presented with the trophy for winning the Country QSO contest. Congratulations, Les, a fine piece of work. Although the 5-metre transmitter was not found, I believe that one party had the spot down to a fine art, but the car couldn't get there. Bad luck, chaps! Talking of 5 mx, VK5GF and 5BF had an r8 QSO over a distance of 60 miles on Sunday, 28th November, from Mt. Barker to Minyip. A fine performance, and has the effect of stirring up interest in this State once more.

To Mr. George Barber we extend our congratulations. George is now a very proud father. While to Joe McAllister all members sympathise

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in his recent bereavement; the loss of a son. Joe has been a willing worker in the Institute for years.

Mr. Barbier, 5MD, will again this year represent the South Australian Division at the annual convention to be held in Sydney during their 150th year celebrations, and incidentally, chaps, let VK5 be more represented in the forthcoming contests to be held at the same time. Now, chaps, let yourself go. An enthusiastic competitor is a worthy opponent.

5KL.

### VK5 COUNTRY NOTES.

(By VK5PN.)

VK5FB.—Is now in Sydney studying for his first class commercial ticket. Present QRA: Mr. E. F. Brandon, 254 Glebe Road, Glebe Point, Sydney.

5RE.—Zone officer for Wakefield zone. Hobby will be pleased to hear from all members and intending members in his zone.

5WG.—Wally paid a very hurried visit to Sydney recently. Back home again now, and settling down to serious work for his first class. Zone officer for Grey zone.

5NW.—Bob is keenly interested in 5 mx. Think he must have deserted 40 metres in favour of the higher freq., as I have not heard him for some time now.

5AT.—Bert told me recently that he intends to become active again on 40 mx very shortly.

5BK.—Haven't been able to work this station yet. How about getting busy on 40 mx, OM?

5HR.—Prominent at Manoorra on field day, but at this season hasn't much time to spare for radio. Bill will make himself heard again, though, when the harvest's in.

Mr. Wally Scott.—Also put in an appearance at Manoorra. Wally has his A.O.P.C., but doesn't appear to be in any great hurry to get a transmitter on the air.

Mr. Col. Bottrall.—In the city recently, and attended a meeting of the Transmitters Section. Made the acquaintance of several of the chaps. How about brightening up your code and taking the exam., Col? Would like to hear you on the air!

Mr. Eric Trebilcock.—Heard from Eric recently. Stirred us up for non-

delivery of mags. Apologies, OM. Guess you have received them now, however, and future numbers will arrive O.K.

5BF.—Good work on 5 mx! Coor-rang to Mt. Barker, 60 miles, 2-way QSO. Frank kept things going at Coor-rang whilst 5GM and 5GF operated portable 5 GY at Mt. Barker. Frank at present roaming around Murray Bridge with a gun in his pocket looking for the owner of a recently installed electric refrigerator which is causing him quite a lot of trouble.

5BG.—Bob Grundy, of Murray Bridge, a new man on the air. Give him a call, chaps. Your QSO's and reports will be appreciated. Look for him on 7275 kc.

5YL.—Another Murray Bridge ham. Betty went along to Manoorra and took her 5 mx transceiver and camera. How about those snaps, Betty? Hope they turned out O.K.

5RJ.—Pleased to see Darcy and Mrs. Hancock at Manoorra. Darcy is transporting his transmitter from his shop to his home. Perhaps that's the reason for his recent silence.

5MP.—Len Porter, of Huddleston, puts a very good signal into the city. Len is another professional radio operator who can find enjoyment in "ham" radio. Operator at 5PI.

5LC.—"The Down-trodden Farmer." His 4½ watts telephony has been reaching the city lately with more kick than a mule. Les is very busy at present with the harvest.

### Tasmanian Division

The December meeting was held at the Y.M.C.A. Room on Tuesday, 7th, in the presence of a moderate attendance. The desire of some members to expedite proceedings was rather puzzling until it was realised that as it was the first meeting after the introduction of 10 o'clock closing of the "bowlers" in VK7 those DX yarns could be just as pleasantly exchanged over a jugful.

Federal Headquarters' report on its activities for the year was presented, a particularly praiseworthy feature being the excellent attendance recorded by members of the execu-



tive. These chaps are obviously taking things seriously, and the decision of the last Convention to retain Federal Headquarters in VK2 is certainly not to be regretted.

An invitation has been received to send a delegate to the 1938 Convention to be held during the coming New South Wales' Sesqui-Centenary Celebrations, together with a guarantee to defray the delegate's expenses. The generous action of that State's Government in allocating a substantial sum should contribute to the success of the Convention, besides relieving the financial strain usually associated with such functions. It seems fairly certain that we will have direct representation, but the actual selection of the delegate will not be made until the views of northern members have been obtained. However, should our Hon. Secretary, "Chum" Moorhouse, be available at the time he will be the most capable representative we could choose.

No results of the recent National Field Day are to hand, nobody participating in the south, but it is understood that 7AB and party had intended trying their luck with the mainland on five metres.

Inactivity seems to be the order of the day, most interstate and DX stations worked commenting on the scarcity of VK7's. However, the following jottings are tendered:—

7JB.—Convalescent after a bout of measles. Has effectively replied to last month's "bug" yarn by returning to the fold on 20 mx fone and cw, and is even threatening to shatter the quiet of 10.

7YL.—Understood to be contracting measles. Heard uttering disparaging remarks about 7JB's amateur status and the perverseness of men in general.

7CM.—Touching the DX along during week-ends. Only needs Africa for WAC, a fine performance considering his comparative low power. The end of study should indicate a prolonged attack on the old ether.

7CT.—After being QYL for many moons has an excuse for his silence at last, having shot his sole source of power, his Genemotor.

7KQ.—Disgusted with the poor

response to his 5 mx appeals, but still plugs away on 40 mx fone during off-shift periods.

7KV.—Indulges in occasional bursts in between chewing his hops. Listens to 7KQ per medium of audio amplifier with absolutely no signal input circuit.

7DH.—Just can't be kept going with dope for his traffic skeds. May lose a little of his enthusiasm for the old key when the threatened 60-watt modulator eventuates.

7LC.—Has moved even further into the bush. Believed to be somewhere Winnaleah. It is understood that there is a new ham in that area also, and any advice as to his doings will be appreciated. Doubtless the flow of inward QSL cards will soon tell the tale, though.

7AB.—Doing a little on 10, judging by the stations heard calling him. His near neighbour, 7LZ, has relinquished his 200 mx permit, so doubtless intends doing serious things on the higher frequencies.

7CL.—Been transferred to the North-West coast from Launceston, but don't know whether he has set up the gear yet.

7KV.

## TRANSMISSION SCHEDULES.

January, 1938.

VK2ME, SYDNEY.

Sydney Time. G.M.T.

Sundays: 4 p.m.-6 p.m. 0600-0800

" 8 p.m.-midnight 1000-1400

Mondays: Midnight-2 a.m. 1400-1600

VK3ME, MELBOURNE.

Melbourne Time. G.M.T.

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Saturday (inclusive)

VK6ME, PERTH.

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Perth Time. G.M.T.

Nightly Monday to 7 p.m.-9 p.m. 0900-1100

Saturday (inclusive)

# First International 56 MC. Transmitting Contest

Following on their successful 28 MC International Contests of 1935 and 1936, which did much to popularise operations on this band of frequencies, the Radio Society of Great Britain are pleased to announce the first 56 MC International Contest.

The rules are as follow:—

1. The Contest will commence on 1st January, 1938, and conclude on 31st December, 1938.
2. The Contest will be open to any radio amateur who is licensed to operate his station in the 56 MC band.
3. The winner of the Contest will be the operator of the station scoring the most points based on the following system:—

1 point for each contact over a distance between 200 and 1000 miles.

5 points between 1001 and 2000 miles.

10 points between 2001 and 3000 miles.

15 points between 3001 and 4000 miles.

20 points between 4001 and 5000 miles.

And so on, at the rate of 5 extra points for each additional 1000 miles or part thereof.

All distances to be calculated by Great Circle.

To count for points the Readability, Strength and Tone (both incoming and outgoing) must be logged, together with Date, Time and Call Sign.

4. In addition, and in order to collect current data, each contestant must send to the Radio Society of Great Britain a monthly report of stations heard and/or worked, together with notes concerning conditions, power used for contacts, etc.
5. The Radio Society of Great Britain will present a suitable trophy to the winner of the Contest, whilst certificates of merit will be awarded to the leading station or stations in each coun-

try.

6. No entrant may employ Interrupted Continuous Waves, Modulated Continuous Waves, Telephony, or any other form of modulated carrier, for contacts claimed in this Contest.
7. At the time of a contact both stations must be operating on 56 MC from their fixed station addresses.
8. Only one contact with a specific station may count for points in any 7-day period.
9. Entrants must adhere to the terms of their licence.
10. Final entries must be received by R.S.G.B., 53 Victoria Street, S.W.1, not later than 28th February, 1939.
11. The decision of the Council of the R.S.G.B. shall be final in all matters relating to the Contest.

Note.—In the above rules the term 56 MC refers to the amateur frequency band, 56 to 60 MC.

## FIRST INTERNATIONAL 56 MC RECEPTION CONTEST.

In conjunction with the International 56 MC Transmitting Contest, and in order to encourage non-transmitting amateurs to collect and tabulate phenomena relative to the 56 MC amateur band, the Radio Society of Great Britain have decided, provided sufficient entries are received, to offer a suitable trophy to the Non-transmitter whose log covering the period 1st January to 31st December, 1938, is considered by the Council of that body to contain the most valuable information.

Certificates of merit will be awarded to those submitting the most valuable information at the conclusion of the Contest, irrespective of the number of entries received.

Logs must be received by R.S.G.B. not later than 28th February, 1939.

Note.—For the purpose of this Contest a non-transmitter shall be regarded as a person who did not hold a radiating permit on 1st January, 1938.

(Continued from Page 14)

tion. 3VH did not hear 3HZ again after 1530, but for the last two minutes before 3HZ finally closed down at 1610 his signals were heard at 3PS at R5-6. A later contact between these stations on 40 metres has confirmed the fact that the signals were definitely from 3HZ.

A summary of the results is as follows:—

3VH-3JO worked 3QJ, 3PS and 3XM at 1220-R8 over 40 miles, 3OT at 1325-R7 over 70 miles, and 3HZ at 1355-R8 over 85 miles, and heard 3OF at 1524-R5 over 105 miles, 3DH at 1600-R6 over 50 miles, and the city stations 3EM, 3OJ, 3YL, and 3HK, also a harmonic from 3NG at R8.

3HZ worked 3VH-3JO at 1352, 1454 and 1512-R6 over 85 miles, and heard 3OF at 1436-R6 over 40 miles.

3OF heard 3OT at 1434-R5 over 153 miles.

3OT worked 3QJ at 1315-R5 over 75 miles and 3VH-3JO at 1354-R6 over 70 miles, and heard 3OF at 1430-R4 over 153 miles and 3PS at 1255-R5 over 75 miles.

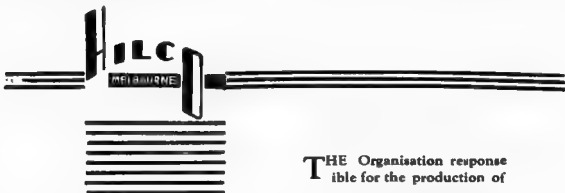
3QJ worked 3VH-3JO-R8 and 3OT-R6.

3PS worked 3VH-3JO-R8, and heard 3OT-R6, 3DH-R6 and 3HZ-R5 at 1609.

These results give us interesting data on which to work in the future, and plans are already being made for another field day in the New Year, although no date has as yet been fixed. All those taking part in this last test are planning new and better equipment, and 3VH-3JO, 3OT, and 3OF intend to take up the same positions on the next field day.

## ALL BAND C.W. TEST. Results,

1—7AB	1618	15—2AFJ	535
2—3MR	1474	16—5LD	525
3—6SA	1430	17—4CG &	
4—2RA	1318	2YC	475
5—3ZC	1252	19—4JF	470
6—2NY	1246	20—5TX	450
7—5KL	1235	21—5LL	445
8—5JT	1155	21—2ABC	445
9—3HG	975	23—2GV	372
10—4AW	880	24—3XB	310
11—2VN	740	24—3BG	310
12—3RJ	730	26—2HZ	244
13—7CM	695	27—6JE	184
14—4UR	660	28—5ZX	146
		29—8DA	78



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Officer Commanding: Flying Officer R. H. Cunningham, 397 High Street, Glen Iris, S.E.6, Victoria (VK3ML).

District Commanders—

Second District, N.S.W.—A. G. Henry, Clareville Avenue, Sandringham (VK2ZK).

Third District, Victoria—Pilot Officer V. E. Marshall, 75 Argyle Road, Kew, E.4 (VK3UK).

Fourth District, Queensland—A. E. Walz, Sandgate Road, Nundah (VK4AW).

Fifth District, South Australia—F. M. Gray, 52 Ormond Grove, Toorak Gardens (VK5SU).

Sixth District, West Australia—6ZI-VK6JE.—J. Elsbury, 24 Addis Street, Kalgoorlie.

Seventh District, Tasmania—R. Cannon, Goldie Street, Wynyard (VK7RC).

### 3rd District Notes.

(VK3UK—3Z1.)

The point of greatest interest for the month—the National Field Day Contest—is the thing we know least about. Neither 1A1 nor 3Z1 have been able to glean the slightest information about the activities or scores of any other competitor. 3B2/3B5 and 2B4/3KX were, we understood, definite starters, but nothing was heard of them during the test. 3F9 came down to be co-partner with 3Z1 and Geoff. Searle, of Regent Radio, and it would be difficult to find three fellows who could work in as well together on a stunt such as this. In all nine countries and just on 40 contacts with all continents except South America was the best 3Z1/3F9 could muster, making a points total of 230. The test provided some great sport, and the week-end proved to be one of the most enjoyable ever, but DX on QRP, when conditions are punk, is the hardest slogging imaginable. Without beam aeriels it would have been heartbreaking.

We are now eagerly awaiting the result of the questionnaire sent to all members recently. Naturally we are anxious to start the new organisa-

tion as early in the New Year as possible, and we hope to be able to take in immediately some at least of those Hams who have waited so long to join.

3Z1 hopes to try some tests down the Western District during the Christmas holidays in conjunction with 3B5 and 3D4. It will be of interest to know just how far towards Coleraine 3D4 fades out and 3B5 comes in, under average conditions, of course. 3Z1 has his automatic transmitter going now on "five," and will have it running during the four week-ends of January with the beam in a different direction each time.

3C5 is selling most of his QRO gear, and details may be had from either 3C5 or 3Z1. There are some bargains for someone.

3D2 has been away up north for a trip, and from all accounts had a grand time. 3D3 carried on the 200 mx transmissions, and also contacted Keith with his own 80 mx rig on many occasions. 3Z1 would like to take this opportunity of thanking all members for their enthusiasm and work throughout the past year, and to wish them all a very Merry Christmas and a Happy New Year.

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## 3MR's DX Notes

### Fan Mail?

The reputation of "dx" hams has been saved by a timely letter from VK4RF. After receiving so many letters from my first plea for co-operation, I increased the staff to deal with this month's mail, which I fully expected to be a very large one. The only one received was an interesting letter from VK4RF. . . Thanks, Fred. . . I have given all interested the chance to make this page what they wish, and if you co-operate, I thank you, and if you don't, well, it's OK with me—thank you very much for enquiring—as I can fill the whole book each month if necessary. The next complaint is about the editor, who is going crook about the length of these notes! Every time I meet him he throws his hands up in the air and yells, "Condenser, condenser!" So evidently there is more capacity required somewhere. If I get any more key clix from him I'll short his feeders

### What Frequency?

When the average ham decides to go "CC," he usually orders an 80mx xtal, and stipulates that the frequency be anywhere, so long as it doubles to 20mx. If only interested in getting going, that idea works out OK, and can be left in the hands of the xtal "gazer." Now, if you ask for the frequency to fall on a certain frequency on 20mx, don't be disappointed if on trying it you find it is 20 or so kc away. The fault is not with the xtal or grinder, but usually can be put down to the xtal holder more than anything else, because the xtal is guaranteed to be plus or minus 3kc at the FUNDAMENTAL frequency, which is in the 3.5mc band, that makes the error 6 kc on 7mc

and 12 kc on 14mc. The holder itself in some cases can alter the fundamental frequency as much as 10 kc. The tubes in osc and the L/C ratio have a lesser affect on the frequency. The reasons outlined above, in most cases, are the cause of so much out band working, especially at the HF end of 14mc. This is just a tip for those contemplating edge xtals, perhaps after reading these notes!

### Best Spot On Band?

There is no doubt about it, there are the best spots on the band, and hundreds do not realise it, and consequently flounder about in the darkness, as it were. To state in terms of kc, which are the best spots to use, is a simple matter, but to explain the finer points is a lengthy one, and bearing in mind the editor's indication of over modulation, I will only briefly deal with it this month, and probably deal with it more fully next issue. As a matter of fact, that's about all I will have to talk about, because I will be floating around VK7 during January, unless the boys rally round and let me have the doings, I'll be stumped for a duck! To get the best out of the game, more than one xtal is needed. One is definitely needed as a calling xtal, preferably at each end of the band, and another for calling "CQ," which should be as far away from the edge and real qrm as possible. Working at both ends of the band in that manner will widen the field of activity. To be anchored with one xtal, to me would be like being in mid-ocean in a rowing boat without any oars—you will get to the shore eventually if you're lucky! Always make it a practice to tune from the very edge of the band after calling CQ, and see

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that it is the end that your xtal is nearest to. If, for some reason or other, you have to tune other from the edge, indicate several times during the CQ and also after signing off what you intend to do. The usual HM or MH, etc., works out very well these days. . . More later.

## General Notes.

Those looking for South America for their WAC, are advised to keep an ear (or two!) on the HF end of 14mc during late afternoons and early evenings. When no yanks are heard is about the best time for some of the rarer stuff from S.A. to pop up . . CE3AT (fone) about 14290kc working lot of VK's, especially the more northern stations. YV5AK T9, 14300 coming in solid, but has a punk rx. . . The CE can be heard from 4 p.m. 4RF reports some good ones, as to be expected from aVK4! A real gem is RX1B, self-excited, who is a Russian boat off Accra gold coast, West Africa. He is looking for VK's, too. Worked at 5 p.m., EST.HF end of band. HO2U is a ship on a world cruise somewhere in the Pacific. . . Other rare ones by 4RF are TF3AZ (14100 kc), but inclined to move about a bit. These ones are easily contacted from the banana land! HB9X, FA8ZZ, LA2Q, SU1DB, YR5CF (3CX please note), UK3AH and a very old timer, CT1GU, on the job again. . . HC1PZ 40 kc out at HF end 14 mc. 1620.T6. . . ZU5L is old Jack from ZL2RY, who passed through Melbourne on way to South Africa, looking for ZL and VK qso's. 4EL works EA7AV HF end. He is an officer fighting against Franco. Qra. . Cadiz. . . Happy hunting for New Year chaps.

73 VK3MR.

## 56 MC TESTS.

VK3UK CC automatic transmissions for January are as follow:— Frequency 57120 kc power 100 watts, 1800 hours Saturday to 1800 hours Sunday. Beam Directions:—8th-9th January, Hobart; 15th-16th January, Sydney; 22nd-23rd January, Brisbane; 29th-30th January, New Zealand.

## Hamads

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